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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/057,427	01/25/2002	Alexander Ksendzov	0007975-0032	9706

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EXAMINER

AL NAZER, LEITH A

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 08/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/057,427	KSENDZOV, ALEXANDER	
	<b>Examiner</b>	<b>Art Unit</b>	
	Leith A Al-Nazer	2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.


- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 May 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,5-12 and 16-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5-12 and 16-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

  
**PAUL IP**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All   b) ☐ Some \*   c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1, 5-12, and 16-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claims 1 and 12 recite a “ring resonator” in combination with external “feedback elements.” The claims are drawn into a “single means claim” or a “single step” method claim. Therefore, the claims fail to comply with MPEP 2164.08(a) single means claim. Furthermore, the individual components comprising the “ring resonator” and the “feedback elements” are not stated. The claims fail to provide any elements or structural relationships to conform the ring resonator. Therefore, the claims are rendered vague and indefinite. Claims 1 and 12 also recite “using” and “the use of”, respectively. Such words and phrases are vague and cannot be used in claim language.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 5, 8-10, 12, 16, and 19-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Bernard et al '342.

With respect to claims 1 and 12, Bernard teaches a method for creating a narrow linewidth hybrid semiconductor laser comprising using a ring resonator in combination with external feedback elements that use Bragg gratings (column 6, lines 47-51).

With respect to claims 5 and 16, Bernard teaches the external feedback elements comprising a waveguide (figures 6-8).

With respect to claims 8, 9, 19, and 20, Bernard teaches the ring resonator comprising a waveguide ring and two straight waveguide sections (figures 6-8).

With respect to claims 10 and 21, Bernard teaches the reflection band of the Bragg gratings being matched with one of the resonator peaks (figures 2 and 3).

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claims 1, 5, 8-12, 16, and 19-22 rejected under 35 U.S.C. 102(a) as being anticipated by Deacon '517.

With respect to claims 1 and 12, Deacon teaches a method for creating a narrow linewidth hybrid semiconductor laser comprising using a ring resonator (1324) in combination with external feedback elements that use Bragg gratings (1330).

With respect to claims 5 and 16, Deacon teaches the external feedback elements comprising a waveguide (figure 13).

With respect to claims 8, 9, 19, and 20, Deacon teaches the ring resonator comprising a waveguide ring and two straight waveguide sections (figure 13).

With respect to claims 10 and 21, Deacon teaches the reflection band of the Bragg gratings being matched with one of the resonator peaks (figure 18).

With respect to claims 11 and 22, Deacon teaches the matching being accomplished by depositing a heater element (1350) on the top of the ring resonator.

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

8. Claims 1, 5, 8, 9, 12, 16, 19, and 20 are rejected under 35 U.S.C. 102(a) as being anticipated by Stepanov et al '165.

With respect to claims 1 and 12, Stepanov teaches a method for creating a narrow linewidth hybrid semiconductor laser comprising using a ring resonator (5) in combination with external feedback elements that use Bragg gratings (2).

With respect to claims 5 and 16, Stepanov teaches the external feedback elements comprising a waveguide (figure 1).

With respect to claims 8, 9, 19, and 20, Stepanov teaches the ring resonator comprising a waveguide ring and two straight waveguide sections (figure 1).

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9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1, 5, 8, 9, 16, 19, and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Jordan et al '795.

With respect to claim 1, Jordan teaches a method for creating a narrow linewidth hybrid semiconductor laser comprising using a ring resonator in combination with external feedback elements that use Bragg gratings (43A and 43B).

With respect to claims 5 and 16, Jordan teaches the external feedback elements comprising a waveguide (figure 5).

With respect to claims 8, 9, 19, and 20, Jordan teaches the ring resonator comprising a waveguide ring and two straight waveguide sections (figure 5).

### ***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. Claims 6, 7, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bernard et al '342 in view of Valette '513 or Holzner et al '885.

Claims 6 and 17 require the waveguide be made of silicon-oxide and silicon-oxinitride. Using such materials in waveguides is well-known in the art, as is evidenced by both Valette (column 3, lines 29-38) and Holzner (column 5, lines 23-52). Therefore, at the time of the invention, it would have been obvious to one having ordinary skill in the art to combine the silicon-oxide and silicon-oxinitride materials taught by Valette or Holzner with the system taught or suggested by Bernard. The motivation for doing so would have been to obtain a suitable material for conforming the waveguide.

Claims 7 and 18 require the ring resonator be based on plasma enhanced chemical vapor deposition silicon-oxide/silicon-oxinitride waveguide technology. Valette teaches such a setup (column 3, lines 55-59).

14. Claims 6, 7, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Deacon '517 in view of Valette '513 or Holzner et al '885.

Claims 6 and 17 require the waveguide be made of silicon-oxide and silicon-oxinitride. Using such materials in waveguides is well-known in the art, as is evidenced by both Valette (column 3, lines 29-38) and Holzner (column 5, lines 23-52). Therefore, at the time of the invention, it would have been obvious to one having ordinary skill in the art to combine the silicon-oxide and silicon-oxinitride materials taught by Valette or Holzner with the system taught or suggested by Deacon. The motivation for doing so would have been to obtain a suitable material for conforming the waveguide.

Claims 7 and 18 require the ring resonator be based on plasma enhanced chemical vapor deposition silicon-oxide/silicon-oxinitride waveguide technology. Valette teaches such a setup (column 3, lines 55-59).

15. Claims 6, 7, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stepanov et al '165 in view of Valette '513 or Holzner et al '885.

Claims 6 and 17 require the waveguide be made of silicon-oxide and silicon-oxinitride. Using such materials in waveguides is well-known in the art, as is evidenced by both Valette (column 3, lines 29-38) and Holzner (column 5, lines 23-52). Therefore, at the time of the invention, it would have been obvious to one having ordinary skill in the art to combine the silicon-oxide and silicon-oxinitride materials taught by Valette or Holzner with the system taught or suggested by Stepanov. The motivation for doing so would have been to obtain a suitable material for conforming the waveguide.



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Claims 7 and 18 require the ring resonator be based on plasma enhanced chemical vapor deposition silicon-oxide/silicon-oxinitride waveguide technology. Valette teaches such a setup (column 3, lines 55-59).

16. Claims 6, 7, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jordan et al '795 in view of Valette '513 or Holzner et al '885.

Claims 6 and 17 require the waveguide be made of silicon-oxide and silicon-oxinitride. Using such materials in waveguides is well-known in the art, as is evidenced by both Valette (column 3, lines 29-38) and Holzner (column 5, lines 23-52). Therefore, at the time of the invention, it would have been obvious to one having ordinary skill in the art to combine the silicon-oxide and silicon-oxinitride materials taught by Valette or Holzner with the system taught or suggested by Jordan. The motivation for doing so would have been to obtain a suitable material for conforming the waveguide.

Claims 7 and 18 require the ring resonator be based on plasma enhanced chemical vapor deposition silicon-oxide/silicon-oxinitride waveguide technology. Valette teaches such a setup (column 3, lines 55-59).

### ***Response to Arguments***

17. Applicant's arguments filed 16 May 2003 have been fully considered but they are not persuasive.

Applicant has amended independent claims 1 and 12 to include the limitation of a Bragg grating being used as the feedback element. However, in column 6, lines 47-51, Bernard et al

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'342 states that a grating could be used in place of the mirror 16 shown in figure 6. Therefore, Bernard still discloses all the elements and structural limitations found in independent claims 1 and 12.

### ***Conclusion***

18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### ***Communication Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leith A Al-Nazer whose telephone number is 703-305-2717. The examiner can normally be reached on Monday-Friday 7:30am-4:00pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on 703-308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7724 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-3329.

LA  
August 22, 2003

  
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